Case Study ID

98-0017

ENERGY OFFICE

Case Study Series

Solar Water Pumping

Caledonia, Michigan

"November, 1998: A decision is made to build (or is it dig) a pond on our 40 acres near Caledonia, Michigan. My wife Kathy, having grown up in Michigan's Upper Peninsula really enjoys fishing. My goal was to bring fishing just a little closer to home for her.

After digging the pond, 60' x 160' x 20' deep, we wait for the winter rain and snow to fill it for us. The location chosen was in what appeared to be the lowest most promising place on our land to insure hitting water. By April, 1999 we have only about 6 feet of water in our pond. By the time May arrives and its accompanying sunshine, we are losing water. The decision is made to put in a well and pump water into the pond. The single biggest obstacle to this is the fact that grid power is almost 1/2 mile away. Having been a proponent of renewable energy for many years it was now time to put action to conviction.

Midwest Renewable Energy Fair 1999: Many articles over the years in magazines like Home Power, Mother Earth News, and others, have featured a person by the name of Windy Dankoff. If anyone could help me,I figured that it was him. Attending the Midwest Renewable Energy Fair is a story by itself and sufficient to say it is was well worth the trip. After viewing the products available and receiving a 10% MREF discount I was on my way to find a dealer for the Dankoff Products. Happily this turned out not to be far from home.

Solar Works in Michigan, located just 45 miles from our home was able to provide us with the products we needed. The beauty of renewable energy systems is that they are modular in design and are not above the skill level of most do it yourselfers. Still it was a good feeling to have Solar Works available in case there were any questions. The equipment necessary turned out to be what is called the "Slow Pump" This is a 24v pump which operating under the conditions required at our location only consumes 54 watts of power. This gives us 4.5 gallons per minute of water. Initially we used four Uni-Solar US64 panels, a charge controller, and a pair of deep cycle batteries to pump 24 hours a day. This gave us nearly 6,500 gallons of water per day.

Just add fish: July, 2000 was an exciting time as our fish were now large enough to catch and eat. Armed with a portable deep fryer and accompanied by many of our neighbors we had our first fish fry. The fishing was great and the eating was second to none. This however was not what got the most attention, it was our solar pumping system. Everyone took turns placing their shadow over the panels and watching the pump slow down. Renewable energy gained a lot of believers that day.

Now that the pond is full, the batteries are gone, replaced with a voltage converter. Only two of the US64's are now required to maintain the water level. In fact, even with pumping water only when the sun shines it was necessary to dig an outlet from the pond. Many technical details have been left out. If anyone has questions about the system you are welcome to e-mail me at ka8ysm@juno.com. I will do my best to an-

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